LRO · Original Practice Content

Class 5 | Logical Reasoning Olympiad

40 Questions · With Answer Key
Syllabax Olympiad Series
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Instructions: Each question has one correct answer. Choose the best option (A/B/C/D). Answer key is provided at the end. This paper is for practice only — not an official exam paper. Recommended time: **45 minutes**.

Q1. The sum of a two-digit number and the number formed by reversing its digits is 121. The digits differ by 3. The number is:

A. 47 **B.** 74
C. 58 **D.** 85

Q2. In a group of 100 people, 72 speak English, 43 speak French, and 20 speak neither. How many speak both?

A. 30 **B.** 25
C. 35 **D.** 40

Q3. If FRIEND is coded as HUMJTK (each letter + 2 positions), then ENEMY is coded as:

A. GPGOA **B.** GPGOAB
C. GOFOA **D.** GPGOB

Q4. A cube painted red on all faces is cut into 27 equal smaller cubes. How many small cubes have exactly 2 faces painted?

A. 8 **B.** 6
C. 12 **D.** 1

Q5. If $x + y = 10$ and $xy = 21$, what is $x^2 + y^2$?

A. 48 **B.** 56
C. 58 **D.** 100

Q6. Statement: The government should ban junk food in schools. Assumption I: Students eat junk food in schools. Assumption II: Junk food is harmful to health. Which assumptions are implicit?

A. Only I **B.** Only II
C. Both I and II **D.** Neither

Q7. A sequence: 1, 1, 2, 3, 5, 8, 13, 21, ___. The 9th term is:

A. 34 | **B.** 55

C. 34 | **D.** 29

Q8. In a race, A finishes before B, C finishes after D, and E finishes between A and B. D finishes before A. The order is:

A. D, A, E, B, C | **B.** C, D, A, E, B

C. D, A, C, E, B | **D.** A, D, E, B, C

Q9. Which is the GREATEST 4-digit number divisible by both 12 and 18?

A. 9972 | **B.** 9990

C. 9996 | **D.** 9988

Q10. Complete the matrix: if Row 1 is [1,2,3], Row 2 is [4,5,6], Row 3 is [7,8,?], what is ??

A. 10 | **B.** 8

C. 9 | **D.** 11

Q11. A, B, C, D, E are 5 friends. A is twice the age of B. C is 3 years younger than A. D and E are twins; each is 2 years older than B. B is 10. Who is the oldest?

A. C | **B.** D or E

C. A | **D.** Cannot determine

Q12. How many 3-digit palindromes exist?

A. 81 | **B.** 100

C. 90 | **D.** 72

Q13. Premises: P1: All honest people are trustworthy. P2: No dishonest person is reliable. P3: Some honest people are reliable. Conclusion: Some reliable people are trustworthy. Is this valid?

A. Invalid — cannot conclude | **B.** Valid only from P2

C. Valid — some reliable are honest (from P3) → those are trustworthy (from P1) | **D.** Valid only if all reliable are honest

Q14. A is 3 years older than B. In 5 years, A's age will be twice B's age. What is B's current age?

A. 1 | **B.** 3

C. 2 | **D.** 4

Q15. The MISSING term in 7, 14, 21, 28, __, 42 is:

A. 35 **B.** 34

C. 35 **D.** 36

Q16. Which is NEXT: AZ, BY, CX, DW, ___?

A. FU **B.** EV

C. EU **D.** FV

Q17. The sum of 3 consecutive odd numbers is 51. The smallest is:

A. 16 **B.** 19

C. 15 **D.** 17

Q18. A number has digits in AP (arithmetic progression): 3, 5, 7. How many such 3-digit numbers exist?

A. 8 **B.** 12

C. 14 **D.** 16

Q19. Two dice are rolled. The probability that the sum is 7 is:

A. 1/4 **B.** 1/9

C. 1/6 **D.** 1/8

Q20. A word is coded as the product of its letter values (A=1, B=2, ...). BAD = 2×1×4 = 8. What is CAB?

A. 6 **B.** 4

C. 8 **D.** 12

Q21. What is the MINIMUM number of straight cuts needed to cut a pizza into 8 equal pieces?

A. 4 **B.** 8

C. 3 **D.** 7

Q22. In a logical paradox: 'This statement is false.' This is the:

A. affirming the consequent fallacy **B.** straw man fallacy

C. liar paradox **D.** ad hominem fallacy

Q23. Find the smallest number that when divided by 8, 12, and 18 leaves a remainder of 5:

A. 65 **B.** 36

C. 77 **D.** 41

Q24. All prime numbers greater than 2 are:

A. divisible by 3 **B.** palindromes

C. odd **D.** twin primes

Q25. A family of 3 generations has 1 grandfather, 1 grandmother, 2 fathers, 2 mothers, 4 children, 3 grandchildren, 1 brother, 2 sisters, 2 sons, 2 daughters, 1 father-in-law, 1 mother-in-law, 1 daughter-in-law. Minimum family members:

A. 8 **B.** 7

C. 9 **D.** 6

Q26. Statement: 'I always lie.' If the speaker always lies, is this statement:

A. true **B.** false

C. a paradox (true ↔ false) **D.** neither true nor false

Q27. In a 3×3 magic square where rows, columns, and diagonals all sum to 15, which number is in the centre?

A. 4 **B.** 6

C. 5 **D.** 7

Q28. The Monty Hall Problem: After switching, your probability of winning is:

A. 1/2 **B.** 1/3

C. 2/3 **D.** 3/4

Q29. How many integers from 1 to 100 are divisible by 3 or 5?

A. 45 **B.** 50

C. 47 **D.** 53

Q30. Statement: 'All swans are white.' One observation that conclusively FALSIFIES this is:

A. many white swans **B.** a blue bird

C. one black swan **D.** a yellow duck

Q31. The number of handshakes in a group of 10 people if everyone shakes hands once is:

A. 50 | **B.** 90

C. 45 | **D.** 40

Q32. A 3×3 grid's cells are to be filled with 1–9 (each once) so every row sums equally. The common sum is:

A. 13 | **B.** 12

C. 15 | **D.** 18

Q33. Which is the NEXT: 1, 5, 14, 30, 55, ___? (Sum of squares: 1^2, 1^2+2^2, ...)?

A. 84 | **B.** 100

C. 91 | **D.** 96

Q34. 'No man is an island. Every island is surrounded by water.' Conclusion:

A. Every man is surrounded by water | **B.** Some men are surrounded by water

C. The conclusion cannot be drawn — 'island' is used metaphorically in premise 1 | **D.** All men are islands

Q35. The ratio of girls to boys in a class is 3:2. If there are 30 students, how many are girls?

A. 12 | **B.** 16

C. 18 | **D.** 20

Q36. If P → Q and Q → R, then P → R. This is the law of:

A. Simplification | **B.** Disjunctive syllogism

C. Hypothetical syllogism | **D.** Conjunction

Q37. How many squares of ALL sizes are in a 4×4 grid?

A. 16 | **B.** 20

C. 30 | **D.** 36

Q38. What is the NEXT term: 2, 12, 36, 80, 150, ___? ($n^2(n+1)$)?

A. 216 | **B.** 252

C. 252 | **D.** 294

Q39. Argument: 'This medicine cured my cold. Therefore, it will cure your cold.' This commits the fallacy of:

A. ad hominem

B. straw man

C. hasty generalisation

D. false dichotomy

Q40. How many ways can you select 2 items from 6 distinct items?

A. 12

B. 30

C. 15

D. 36

Answer Key

Q1: C Q2: C Q3: A Q4: C Q5: C Q6: C Q7: A Q8: A Q9: C Q10: C

Q11: C Q12: C Q13: C Q14: C Q15: A Q16: B Q17: C Q18: C Q19: C

Q20: C Q21: C Q22: C Q23: C Q24: C Q25: B Q26: C Q27: C Q28: C

Q29: C Q30: C Q31: C Q32: C Q33: C Q34: C Q35: C Q36: C Q37: C

Q38: B Q39: C Q40: C